DOCUMENT RESUME

ED 149 392 CS 501 939

AUTHOR Drecksel, Debra
TITLE Nonverbal Communication: Toward Interaction Analysis.
PUB DATE Nov 77
NOTE 30p.; Paper presented at the Annual Meeting of the Western Speech Communication Association (Phoenix, Arizona, November 22-23, 1977)

EDRS PRICE MF-$0.83 HC-$2.06 Plus Postage.
DESCRIPTORS *Body Language; *Communication (Thought Transfer); *Interaction Process Analysis; Intermode Differences; *Nonverbal Ability; *Nonverbal Communication; Nonverbal Tests; Research Methodology
IDENTIFIERS *Communications Research

ABSTRACT

This paper defends a nonsummative perspective in the investigation of nonverbal communication. It maintains that a holistic approach is necessary for examining the systematic nature of communicaton, as well as for considering the hierarchical arrangement of behavioral units, interaction as an undissected whole, and the context of communication. Interaction analysis is the method suggested for performing nonsummative nonverbal study. The paper proposes a unit of analysis, various categories of analysis, a coding manual, data analysis, and interaction matrices. Applications of the methodology are discussed and specific research questions on the topic are proposed for further investigation. A list of references on nonverbal communication accompanies the paper. (Author/MAI)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

ED149392

NONVERBAL COMMUNICATION: TOWARD INTERACTION ANALYSIS

by

Debra Drecksel

Research Fellow and Teaching Assistant

Speech Communication Department

University of Utah

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Debra Drecksel

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

Presented on the "Competitive Papers: Measurement Issues" Panel of the BSIG Program

Western Speech Communication Association Convention, 1977-78

CS501 939

NONVERBAL COMMUNICATION:
TOWARD INTERACTION ANALYSIS

Present Stance of Nonverbal Communication Research

Numerous convention papers, journal articles, textbooks, and popular books are published every year on the topic of nonverbal communication. Such works emanate from scholars of communication as well as psychology, sociology, and other disciplines concerned with human behavior. In the face of such enthusiasm and interest, however, several difficulties persist in discussing and researching nonverbal communication. These difficulties stem from differing approaches to communication study.

Literature on nonverbal communication can be broadly classified into two categories of approaches: summative and nonsummative. Summative perspectives of nonverbal communication are reductionistic and based on the premise that the sum of the component parts of a communicative event adequately represents the whole. Therefore, from a summative perspective, one or several variables may be abstracted and observed and/or manipulated to gain insight into nonverbal communication. Nonsummative approaches, however, are holistic and based on the premise that the sum of the component

parts of a communicative event is different from and, therefore, not representative of the whole. From a nonsummative perspective, then, variables should not be abstracted. Rather ongoing patterns of interaction should be observed over time to gain insight into nonverbal communication.

The vast majority of present nonverbal investigation falls into the summative category. Variables abstracted in summative research have been both behavioral and environmental. Examples of behavioral variables isolated include eye contact, facial expression, paralanguage, gestures, and body movement.* For instance, Efran and Broughton (1966) isolate eye contact to examine the effect of expectancies for social approval on visual behavior. They conclude that people look at friendly familiar persons more than at strangers. Researchers that abstract facial expressions as the variables of interest can be exemplified by the work of Ekman and Friesen. In one study, Ekman, et al. (1971) developed and tested the Facial Affect Scoring Technique (FAST). Using this tool they were able to show that observers can recognize (decode) facial expressions of emotion.

---

*An exemplary study of each variable is discussed in the above text. Other reductionistic research includes: eye contact--Ellsworth & Carlsmith (1968), Exline (1962), and Argyle (1969); facial expression--Frijda (1969), Leventhal & Sharp (1965), and Tomkins & McCarter (1964); paralinguistic cues--Davitz & Davitz (1959), Scherer (1972), and Milmoe et al. (1967); gestures and body movement--Dittman (1962), and Sainsbury (1955); environmental variables--Bass & Klubeck (1952), Winick & Holt (1961), and Sommer (1967).

Paralanguage has been investigated as a third area of nonverbal summative research. For example, Brooks et al. (1969) discovered that response to tonal inflection varied according to subgroup. Gestures have been looked at reductionistically by Wiener et al. (1972). They advocate the view that gestures comprise a code that encoders linearly transmit to decoders. Environmental variables have also been abstracted for summative study. Hall (1968) views the use of space to be a function of cultural background.

It is the thesis of this paper that summative approaches to nonverbal research are not as fruitful as nonsummative views. There is not a one-to-one correspondence between any single nonverbal behavior and its meaning. Rather the functions a behavior serves will vary according to the pattern and context in which it occurs. As stated by Scheflen (1974, p. 179):

> We cannot thereby speak of the meaning of any behavior. There is instead a system of meanings in broader and broader levels of circumstance and experience. Furthermore, we cannot think of any act as having a meaning of its own, for meaning is not a property of the behavior itself. The term "meaning" applies instead to a relation of behavior and context.

Therefore, perspectives that isolate individual nonverbal behaviors cannot provide as much insight into the meanings communicated as can holistic approaches.

Summative perspectives and research concerning nonverbal communication also embody other inherent difficulties. Birdwhistell (1970, p. 72-73) laments that reductionistic

nonverbal study hides the systematic nature of communication. He also points out that abstracted variables cannot be added together to adequately represent the communication process. Birdwhistell expresses this inequity by analogy, "No statistical procedure can assemble bark, dead leaves, maple sugar, and the ashes from a burning log into a comprehensible tree." Birdwhistell (1970) and Scheflen (1965) emphasize that summative investigation of nonverbal communication fails to take into account the arrangement of behavioral units in a hierarchy of levels. This neglects the structural configurations of behaviors as they appear in the stream of communication. Thus, the context of the nonverbal behaviors is overlooked.

Conversely, nonsummative approaches to the study of nonverbal communication more adequately represent the complex communication process. Holistic perspectives view the systematic nature of communication, interaction as an undissected whole, the hierarchical arrangement of behavioral units, and the context of communication.

Holistic nonverbal study views patterns of nonverbal behavior and sometimes combines in an overall pattern several modes (such as eye contact, gesture, and posture). For example, patterns of body movement are studied by Kendon (1970). He gives a detailed description of the way in which the behavior of speakers and listeners are interrelated. Interactional syncrony has also been investigated by Condon and

and Ogston (1966). Birdwhistell (1970) is another advocate of holistic study. He has made a systematic study of nonverbal units of behavior that are combined into orderly structures of behavior in the interactive sequence and ultimately contribute to social meaning. His general areas of focus include brow behavior, lid closure, nose, and mouth.

An even more comprehensive investigation of nonverbal communication patterns than those done by Kendon, Condon and Ogston, or Birdwhistell is that done by Sheflen. In one work, Scheflen (1972) discusses the cues and signals for ordering a transaction. In this he includes the initial definition of the transaction, ordering the speaking and listening arrangements, and ordering the quality of relationships. He is dealing with function of nonverbal communication. Patterns he discusses involve combinations of eyebrow flashes, slumping of posture, smiling, mock fighting, physical contact, dominance displays, grooming behaviors, eye contact, gestures, pelvis orientation, seating arrangements, postural orientations, paralinguistic utterances, metronomic use of a body part, affective displays, quasi-courtship behavior, laughter, winks, head positions, and palm orientation. This is obviously a much more holistic approach to nonverbal communication than those reviewed earlier involving abstracted variables.

In another work, Sheflen (1974) explicates the hierarchical structure of nonverbal communication contexts or

units. From smallest to largest they are: "point-units," "positions," "units of discourse," "relations," and "transactions." Sheflen views nonverbal contexts (or environments), not as variables for abstraction and experimentational manipulation, but rather as components of a whole. Smaller units comprise larger units and larger units constrain smaller units. Thus, he is able to study the function of individual nonverbal units and the relationship of the units to one another while still remaining true to the nonsummative nature of communication.

Performing Nonsummative Nonverbal Interaction Analysis

Given the preceding review of the literature on summative and nonsummative approaches to nonverbal communication, where should current efforts be headed? It is the thesis of this paper that the more fruitful general direction for the study of nonverbal communication is the nonsummative approach. Research that combines many modes of nonverbal communicative behavior according to the overall function they serve (such as Sheflen's work) provides as increasingly adequate representation of communication. Although not abundant, the study of functional patterns of interaction integrating several nonverbal modes should be encouraged. Of further significance, interaction analysis of functional patterns of nonverbal communication should be done to record changes in patterns over time and to heighten

the processual quality of nonverbal research. The remainder of this paper will be devoted to specific suggestions for implementing nonsummative interaction analysis of nonverbal communication.

Unit of Analysis

The first necessary step for nonverbal interaction analysis is to identify a meaningful unit of analysis. This is somewhat problematic because nonverbal communication does not occur in discrete packages, but rather is a continuous uninterrupted flow of behavior. An additional complication is that all communicants are communicating nonverbally at the same time; they are behaving simultaneously.

One possible division of units exists in conjunction with the verbal dimension. Each uninterrupted verbal utterance could serve as a unit marker. The nonverbal communicative behavior that occurred during this period (one uninterrupted verbal utterance) could be viewed as a unit of analysis. The nonverbal communicative behavior of each participant would be coded separately for every unit. Behavior occurring between verbal utterances could be included in the preceding verbally marked unit unless silence continued for an extended period of time. In extended silences, an arbitrary division of five-second units could be made.

A division of analysis units based on the verbal dimension has three advantages. First units are easily recognizable. Second the simultaneous nonverbal communi-

cation of each participant could be viewed in identical units. Third patterns of nonverbal interaction could be compared to verbal interaction analysis systems using the same units.

Many other possible units of analysis for nonverbal communication exist. The unit suggested above is not advocated as "the perfect" unit, but rather as an indication of an issue to be resolved and one possible solution.

Categories of Analysis

The second necessary step for nonverbal interaction analysis is to conceptualize a category system for coding. Such a category system must meet the following requirements:

(1) Patterns of nonverbal communicative behavior should compose the categories.

(2) Choice of patterns should be based on the communicative functions these patterns serve.

(3) The patterns and their functions should come out of previous nonsummative research on nonverbal communication.

(4) Categories should be mutually exclusive and exhaustive.

(5) Categories must provide for differences in function of identical behaviors or patterns in varying contexts. (For instance, leaning forward may function differently when speaking than when listening).

(6) Categories must reflect the association of in-

dividuals. (For example, leaning forward implies a different association when the other participant is leaning forward also than when the other is leaning back).

Devising such a category system is no easy task. However, it is essential to the understanding of nonverbal communicative patterns of behavior and their function. Nonverbal interaction analysis is also prerequisite to empirically discovering changes in nonverbal communication patterns over time.

A tentative model for a nonverbal category system will be proposed here. Operationalizations are based on holistic literature when possible. However, because of the paucity of nonsummative nonverbal research, not all patterns come out of holistic studies. As the number of holistic findings increase, these categories should be refined.

Nonverbal Interaction Analysis Category System (NIACS)

Bateson (1958) and others have distinguished between the content or report dimension of communication and the relationship or command dimension. Watzlawick et al. (1967) posit that nonverbal communication predominantly conveys relationship. Therefore, this category system will be oriented to how patterns of nonverbal communication function to communicate the relationship between individuals.

Several present verbal interaction analysis systems

(Ericson & Rogers, 1973; Rogers & Farace, 1975; Mark, 1971; Ellis, 1976; and Ellis, et al., 1976) are based on relationships involving dominance (↑), equivalence (→), and submission (↓). NIACS will follow this precedent for examining nonverbal communication. Three patterns of nonverbal communicative behavior have been identified. The patterns function to define the relationship between communicants. Coding judgements should be made according to the gestalt of the communicant's nonverbal behavior during a coding unit. This system is designed to analyze dyadic nonverbal interaction.

NIACS provides an initial direction for developing nonverbal interaction analysis coding systems. It synthesizes existing findings of nonverbal research as the basis of its categories. NIACS needs empirical testing to indicate how it could be utilized best.

Tentative Model for a Nonverbal Interaction Analysis Category System (NIACS) Coding Manual

I. Dominance (↑)

Eye Contact

1. Quasi-courtship eye contact (Scheflen, 1965, pp. 245-57).
   a. Flirtatious glances
   b. Gaze holding
   c. Bagginess around eyes decreases

2. One or both eyebrows raised in incredulity or skepticism (Scheflen, 1974, p. 174; Harrison, 1965, pp. 158-74)
3. Half-closed eyes indicating boredom (Harrison, 1965, pp. 158-74)
4. Prolonged stare into eyes of other (Scheflen, 1974, pp. 68, 69, 164)
5. Averted eye contact which indicates rejection of others (Brooks, 1971, p. 161)

Posture and Bodily Orientation

1. Expansive postures and movements (Mehrabian, 1971, pp. 113-14)
2. Turn back to other (Mehrabian, 1971, pp. 115-16)
3. Comfortable and relaxed posture (Mehrabian, 1971, pp. 115-16)
4. Action postures related to interrupting or gaining the floor (Brooks, 1971, p. 163; Scheflen, 1974, pp. 68, 85, 156-57)
   a. Sitting on the edge of the chair
   b. Leaning forward
   c. More erect posture
   d. Congruent posture and synchronous movements with speaker
   e. Uncross extremities
5. Confident posture (Brooks, 1971, p. 165)

a. Erect

b. Shoulders back

6. Move away from other in rejection (Brooks, 1971, p. 171; Scheflen, 1974, p. 38)

7. Move closer and invade personal space of other (Scheflen, 1974, pp. 70-85)

8. Put feet on desk (Scheflen, 1974, p. 151)

9. Full vis-á vis (facing each other at the exclusion of others) (Scheflen, 1965, pp. 245-57, 1974, pp. 54-67)

10. Dominance display (Scheflen, 1971, p. 164)

    a. Body is brought into full frontal orientation toward the addressee

    b. The body may be brought to full height

    c. The head, jaw, or chest may be protruded

11. Quasi-courtship posture (Scheflen, 1965, pp. 245-57)

    a. High muscle tonus

    b. Sagging disappears

    c. The torso becomes more erect

    d. Pot-bellied slumping disappears or decreases

    e. Legs are brought into tighter tonus

    f. Rolling of the pelvis

    g. In women, crossing the legs, slightly exposing the thigh, protruding the breast

Gestures

1. Pointing with index finger (Brooks, 1971, p. 165)

2. Gestures indicating boredom and/or impatience (Brooks, 1971, p. 165)
   a. Tapping finger
   b. Doodling
   c. Toe tapping
   d. Ball-point pen clicking
3. Gestures indicating strong rejection (Brooks, 1971, p. 163)
   a. Nose touching or rubbing
   b. Rubbing the eye
   c. Covering the mouth with the hand
4. Hands placed on hips (Scheflen, 1974, p. 164)
5. Thumbs hooked into pockets or the belt (Scheflen, 1974, p. 133)
6. A fist (Scheflen, 1974, p. 164)
7. Gestures to shut out others in rejection
   a. Eye covering: a hand is placed, palm inward, over one eye (Scheflen, 1974, p. 133)
8. Physical contact (Scheflen, 1974, p. 162)
9. Gestures that symbolize commands (i.e., palm facing other indicating, "Stop!") (Scheflen, 1974, pp. 155-65)
10. Preening gestures (Scheflen, 1965, pp. 245-57)
    a. Stroke hair
    b. Rearrange clothing
    c. Placing a hand on a hip
    d. Exhibiting a wrist or palm

e. Slow stroking motions of the fingers on the thigh or wrist

f. Demure gestures

g. Touching the breast

h. Balancing a shoe half on and half off

11. Profane gestures (i.e., the "bird") (Goffman, 1967, pp. 85-90)

Facial Expressions

1. Anger
2. Disgust
3. Boredom
4. Yawning
5. Frowning indicating rejection or monitoring deviance (Scheflen, 1974, p. 117)
6. External preoccupation (Scheflen, 1974, p. 117)

Other Patterns

1. Commands: A number of primary stresses may be added to the imperative (Scheflen, 1974, p. 161)

   a. Full shift in posture

   b. Head nodded at addressee

   c. Finger or foot pointed at addressee

   d. Sometimes the jaw is jutted toward the addressee at the terminal juncture

   e. The terminal may be stressed by an emphatic lowering of the head, hand, or fist

2. Has temper tantrum, flies into a blind rage (Goffman, 1967, p. 103)

II. Equivalence (↔)

Eye Contact

1. Look at each other's faces, but not into one another's eye (Scheflen, 1974, p. 69)
2. Speaker may look over the listener's head or shoulder in thoughtfulness (Scheflen, 1974, p. 70)
3. Glance contact

Posture and Bodily Orientation

1. Poised, straight posture (Scheflen, 1974, pp. 70-85)
2. "Contentless" point: maintaining mutual orientation in a relationship that is at the moment "inactive" (Scheflen, 1974, p. 38)
3. Angles of up to 90 degrees from a full vis-á vis (Scheflen, 1974, pp. 54-67)
4. Side-by-side (Scheflen, 1974, pp. 54-67)
   a. Indicating cooperation
   b. Likely to use congruent or parallel postures
   c. Likely to move syncronously in their microbehavior (Kendon, 1969, Condon & Ogston, 1966)
5. Thinking posture (Brooks, 1971, p. 163)
   a. Supporting the head or chin with one hand to cheek

b. Tilting head to one side

Gestures

1. Decision-making gestures (Brooks, 1971, p. 163; Scheflen, 1974, p. 70)
   a. Stroking chin
   b. Pulling beard
   c. Scratch head
   d. Rub chin
2. Symbolic and iconic gestures clarifying the verbal (i.e., draw picture in air with hands) (Scheflen, 1974, pp. 35-36)
3. Produce photographs, motion pictures, diagrams, drawings, written descriptions, or sculpture as demonstratives (Scheflen, 1974, p. 38)
4. Units of task or actonic behavior (Scheflen, 1974, p. 38)
   a. Feeding
   b. Lovemaking
   c. Grooming another
   d. Manufacturing a product
   e. Preparing a site
   f. Eating
   g. Smoking
   h. Adjusting lights or furniture
5. Adaptors (i.e., scratching) (Ekman & Friesen, 1971)

6. Symbolic gestures that replace the verbal but do not command, profane, or show submission (i.e., "hi," "bye," etc.) (Scheflen, 1974, pp. 35-36)
7. Relaxed, no movement

Facial Expressions

1. Poised, interaction-conscious (Scheflen, 1974, p. 119)
2. Happy, sincere smile (Harrison, 1965, pp. 158-74)
3. Reasonably attentive (Scheflen, 1974, pp. 139-40)
4. A bland and thoughtful countenance (Scheflen, 1974, p. 68)
5. Face set to represent (reinforce verbal) ideas or emotions (Scheflen, 1974, pp. 35-36)

III. Submission (↓)

1. Avoidance of eye contact
   a. In an effort to escape or hide (Brooks, 1971, p. 161)
   b. So as not to violate the "ideal sphere" of the other (Goffman, 1967, p. 62)
   c. Out of shyness (Brooks, 1971, p. 165)
   d. Downward glance that conceals the expression of the eyes (Goffman, 1967, p. 102)
2. Speakers may look down at their feet if they are speaking tentatively or hesitantly or at times when they subjectively report shame, guilt, or a fear of offending (Scheflen, 1974, p. 70)

3. Listener may signal total attentiveness (Scheflen, 1974, pp. 139-40; Mehrabian, 1971, p. 116)
   a. Looking at speaker
   b. Slightly opening eyelid aperture
   c. More watchful, observant, alert
4. Excessive blinking (Goffman, 1967, p. 97)

Posture and Bodily Orientation

1. Small and controlled postures and movements (Mehrabian, 1971, p. 115)
2. Bowing (Mehrabian, 1971, p. 115)
3. Tense, less relaxed postures (Mehrabian, 1971, p. 116)
4. Unceasing shifting of the body (Brooks, 1971, p. 165)
5. Putting more space between self and other out of fear and defensiveness
   a. Turning body away from other communicator (Brooks, 1971, p. 165)
   b. Turning so as to point toward the door (Brooks, 1971, p. 165)
   c. Hunching down or head down (Scheflen, 1974, pp. 70, 164; Goffman, 1967, p. 97)
   d. Cocking the head (Scheflen, 1974, p. 164)
   e. Turn face away from other to hide anxiety, sadness (Scheflen, 1974, p. 155)
   f. Folded arms, hidden hands, buttoned coats, crossed legs (Brooks, 1971, p. 163)

g. Selecting the chair farthest away (Brooks, 1971, p. 165)

6. Becomes rigidly immobile as in fear or panic (Goffman, 1967, p. 103)

7. Posture signalling total attentiveness: extremely straight, slightly forward and tense (Scheflen 1974, pp. 68-85)

8. Postures indicating openness for encounter: hands open, arms open, legs uncrossed, and coats unbuttoned (Brooks, 1971, p. 163)

Gestures

1. Gestures indicating anxiety:

   a. Fumbling, tremor of the hand, hesitating or vacillating movement (Goffman, 1967, p. 97)

   b. Nervous fingering of the clothing or twisting of the fingers together (Goffmann, 1967, p. 97)

   c. Busy hands (Goffman, 1967, p. 102)

   d. Hand clenching cuticle picking, pen or pencil chewing, nail biting, hand to throat, playing with necklace (Brooks, 1971, p. 163)

   e. Rubbing the back of the neck, rubbing fingers through hair nervously, hand wringing, short breathing (Brooks, 1971, p. 163)

   f. Lint-picking (Scheflen, 1974, p. 174)

   g. Rapid movements, rapid speech, clearing the throat

nervously, putting out a cigarette or letting a cigarette burn without smoking it (Brooks, 1971, p. 165)

2. Gestures indicating lack of knowledge:
   a. Extend lower arms and turn palms upward (Scheflen, 1974, p. 133)
   b. Shrug shoulders (Scheflen, 1974, p. 156)
3. Gestures indicating cowering or self-abasement:
   a. Hand over mouth (Scheflen, 1974, p. 133)
   b. Hide eyes with hands (Scheflen, 1974, p. 156)
   c. Slap forehead with palm (Scheflen, 1974, p. 156)

Facial Expressions

1. Fear
2. Surprise
3. Sadness (Harrison, 1965, pp. 158-74)
4. Studied nonobservance of faux pas of other (Goffman, 1967, p. 14)
5. Lose control of expressions (Goffman, 1967, p. 18)
6. Blushing (Goffman, 1967, p. 97)

Other Patterns

2. Sweating (Goffman, 1967, p. 97)
2. Self-consciousness (Goffman, 1967, p. 118)
3. Behaviors indicating lack of self-control (Goffman, 1967, p. 103)
   a. Collapsing into tears

b. Paroxysms of laughter

c. Fainting

d. Dashing to nearest exit

Ongoing interaction should be coded into nonverbal interaction analysis categories according to the overall pattern of each communicant's nonverbal behavior during a single unit. Observation and coding should continue over time to enable the discovery of phases and changes in patterns. Such research should most adequately represent the process of nonverbal communication.

Analyzing the Data

This category system could utilize the unit of analysis discussed earlier (one uninterrupted utterance or five seconds of silence). For instance, during ten coding units, Person A's behavior might be coded as ↑, ↑, ↑, ↑, →, →, ↑, ↑, ↑, ↑. Person B's codes during the same time might appear as ↑, ↑, ↓, →, →, →, →, ↓, ↓, →. Thus, the interaction between Person A and Person B for these ten coding units could be represented as ↑↑, ↑↑, ↑↓, ↑→, →→, →→, ↑→, ↑↓, ↑↓, ↑→, with the codes for Person A's behavior always being recorded first, and the codes for Person B second. In this way, not only would the relationship statement of each communicant be recorded (Person A was dominant four times, then equivalent twice, and then dominant four more times) but also the

relationship between the communicants would be characterized (a dominant/dominant relationship [↑↑] is different from a dominant/submissive relationship [↑↓] even though Person A behaved dominantly each time).

The Interaction Matrices

These are interaction matrices. The matrix labeled "Person A" shows what antecedent acts of Person A were followed by what subsequent acts by Person A. The matrix labeled "Person B" represents the coded behavioral acts of Person B in the same way as the "Person A" matrix indicates Person A's behavior. The matrix labeled "Relationship A/B" illustrates what antecedent simultaneous acts of Person A and Person B are followed by what subsequent simultaneous acts of Person A and Person B. Thus, the "Relationship A/B" matrix represents the simultaneous definition of the relationship between Person A and Person B by indicating what nonverbal relationship statements are being made by Person A (↑, →, or ↓) and Person B (↑, →, or ↓) during the same coding unit. The "Relationship A/B" matrix also shows how the simultaneous relationship definition changes over time (e.g., from ↑↑ to ↑↑ to ↑↓). Matrices representing the hypothetical ten coding units used as an example in the "Analyzing the Data" section of this paper would appear as follows:

Person A: ↑, ↑, ↑, ↑, →, →, ↑, ↑, ↑, ↑.

Person B: ↑, ↑, ↓, →, →, →, →, ↓, ↓, →.

Relationship A/B: ↑↑, ↑↑, ↑↓, ↑→, →→, →→, ↑→, ↑↓, ↑↓, ↑→.

Person A

	↑	→	↓
↑	6	1	
→	1	1	
↓			

Person B

	↑	→	↓
↑	1		1
→		3	1
↓		2	1

Relationship A/B

	↑↑	↑→	→↑	→→	→↓	↓→	↑↓	↓↑	↓↓
↑↑	1						1		
↑→				1					
→↑							1		
→→			1	1					
→↓									
↓→									
↑↓		1	1				1		
↓↑									
↓↓									

Using this type of analysis, the nonverbal patterns of each communicant and the nonverbal pattern of the communicants in relationship to one another could be discovered. (Of course, sample size would be more like 1,000 acts rather than 10).

For a detailed discussion of statistical analyses of interaction data see Fisher (1976). He provides insight into the levels of interactive complexity (e.g., act, double interact, etc.) for possible focus during analysis. Fisher also discusses the most promising statistics being employed for the analysis of interaction data. These include Markov analysis, the Anderson-Goodman test for homogeneity, and sterotopy measures.

Applications of the Methodology

Nonverbal interaction analysis would be valuable in discovering both patterns of nonverbal interaction and phasic changes in these patterns. This coding system could also provide insight into interpersonal relationship patterns and change.

After nonverbal interaction analysis has been mastered, it would be useful to analyze the same data on both a nonverbal and a verbal interaction analysis system. Patterns of the two could be correlated and it could be discovered whether the same information is being communicated at both levels, or if not, what the differences are.

For example, a videotape could be made of a dyadic interaction. The verbal communication could be transcribed and typed. Coders could use a verbal relationship system to code from the transcripts. Then the videotape could be shown, without the sound, to other coders, who, using a non-

verbal relationship system (such as NIACS), could code the interaction. Patterns from the two analyzes could be compared and contrasted to gain insight into verbal communication, nonverbal communication, the communication of relationships, and the overall verbal/nonverbal communication process.

Examples of specific research questions that could be investigated using nonverbal interaction analysis include:

(1) What patterns of relationship definition are typically manifested nonverbally?

(2) How do nonverbal patterns of relationship definition vary with context or type of dyad?

(3) How do dyads with relationship problems (such as couples seeking marriage counseling) deviate from typical nonverbal interaction patterns of relationship definition?

(4) What phasic changes in relationship definition are manifested nonverbally over time?

(5) How do verbal relationship definition and nonverbal relationship definition compare and contrast?

In summary, a call is made for increasingly holistic and processual conceptualizations and research of communication. Only when the functions of nonverbal communication patterns can be discovered and observed systematically over time can an adequately complex representation of communication be made.

REFERENCES

Argyle, M., et al. The communication of inferior and superior attitudes by verbal and non-verbal signals. British Journal of Social and Clinical Psychology, 1970, 9, 222-231.

Bass, B. M., & Klubeck, S. Effects of seating arrangements on leaderless group discussions. Journal of Abnormal and Social Psychology, 1952, 47, 724-727.

Bateson, G. Naven, 2nd ed. Stanford University Press, Stanford, Calif., 1958.

Birdwhistell, R. L. Toward analyzing American movement. Kinesics and Context, University of Pennsylvania Press, Philadelphia, 1970, 99-110.

Brooks, R., Brandt, L., & Wiener, M. Different response to two communication channels: Socioeconomic class differences in response to verbal reinforcers communicated with and without tonal inflection. Child Development, 1969, 40, 453-470.

Condon, W. S. & Ogston, W. D. Sound film analysis of normal and pathological patterns. Journal of Nervous Disorders. 1966, 143, 338-347.

Davitz, J. R. & Davitz, L. J. The communication of feelings by content-free speech. Journal of Communication, 1959, 9, 6-13.

Dittmann, A. T. The relationship between movements and moods in interviews. Journal of Consulting Psychology, 1962, 26, 480.

Efran, J. S. & Broughton, A. Effect of expectancies for social approval on visual behavior. Journal of Personality and Social Psychology, 1966, 4, 103-107.

Ekman, P., Friesen, W. V., & Tomkins, S. S. Facial affect scoring technique: A first validity study. Semiotica, 1971, 3, 37-58.

Ellis, D. G. EROS. Doctoral Dissertation, University of Utah, 1976.

Ellis, D. G., Fisher, B. A., Drecksel, G. L., Drecksel, D., & Werbel, W. Rel/Comm., unpublished coding manual, 1976.

Ellsworth, P. C., & Carlsmith, J. M. Effects of eye contact and verbal content on affective response to a dyadic interaction. Journal of Personality and Social Psychology, 1968, 10, 15-20.

Ericson, P. M. & Rogers, L. E. New procedures for analyzing relational communication. Family Practices, 1973, 12, 245-267.

Exline, R. V. Visual interaction: The glances of power and and preference. Nebraska Symposium on Motivation, 1971, J. Cole, ed., University of Nebraska Press, Lincoln, 1972, 163-206.

Fisher, B. A. Communication study in the system perspective. General Systems Theory and Human Communication. Ruben, B. D. & Kim, J. Y., ed., Hayden Book Co., Rochele Park, New Jersey, 1975, 192.

Fisher, B. A. Social information processing analysis (SIPA): Coding ongoing human interaction. International Comm. Asso., Portland, Oregon, April, 1976, 15-16.

Frijda, N. H. Recognition of emotion. Advances in experimental social psychology, 1969, 4. L. Berkowitz, ed., New York: Academic Press.

Goffman, E. Interaction ritual: Essays on face-to-face behavior. Anchor Press/Doubleday, Garden City, New York, 1967.

Hall, E. T. Proxemics. Current anthropology, 1968, 9, 83-95, 106-108.

Harrison, R. Nonverbal communication: Exploration into time, space, action, and object. Dimensions in Communication. Campbell, J. & Hepler, H. ed., Wadsworth, Belmont, Calif., 1965, 158-174.

Kendon, A. Movement coordination in social interaction: Some examples described. Acta Psychologia, 1970, 32, 100-125.

Leventhal, H., & Sharp, E. Facial expressions as indicators of distress. Affect, Cognition and Personality: Empirical Studies. S. S. Tomkins & C. E. Izard, ed., New York: Springer, 1965, 296-318.

Mark, R. A. Coding communication on the relational level. Journal of Communication, 1971, 21, 221-232.

Mehrabian, A. Silent messages. Wadsworth, Belmont, Calif., 1971.

Milmoe, S., Rosenthal, R., Blane, H. T., Chafetz, M. E., & Wolf, I. The doctor's voice: Postdictor of successful referral of alcoholic patients. Journal of Abnormal Psychology, 1967, 72, 78-84.

Rogers, L. E. & Farace, R. V. Analysis of relational communication in dyads: New measurement procedures. Human Communication Research, 1971, 1, 222-239.

Sainsbury, P. Gestural movement during psychiatric interview. Psychosomatic Medicine, 1955, 17, 458.

Scherer, K. R. Acoustic concomitants of emotional dimensions: Judging affect from synthesized tone sequences. Paper presented at Eastern Psychological Asso. Meeting, Boston, April 1972.

Scheflen, A. E. Quasi-courtship behaviors in psychotherapy. Psychiatry, 1965, 28, 245-257.

Scheflen, A. E. Body language and social order. Prentice-Hall, Inc., Englewood Cliffs, N. J., 1972, 61-74.

Scheflen, A. E. How behavior means. Anchor Press/Doubleday, Garden City, New York, 1974.

Sommer, R. Small group ecology. Psychological Bulletin, 1967, 67, 145-152.

Tomkins, S. S. & McCarter, R. What and where are the primary affects?: Some evidence for theory. Perceptual and Motor Skills, 1964, 18, 119-158.

Watzlawick, P., Beavin, J. H., & Jackson, D. D. Pragmatics of human communication. W. W. Norton & Co., Inc., New York, New York, 1967, 60-64.

Wiener, M., Devoe, S., Rubinow, S., & Geller, J. Nonverbal behavior and nonverbal communication. Psychological Review, 1972, 79, 185-214.

Winick, C. & Holt, H. Seating position as nonverbal communication in group analysis. Psychiatry, 1961, 67, 171-182.